Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7 (canceled).

Claim 8 (previously presented): A stimuli-responsive polymer hydrogel comprising:

a water-insoluble polymer as a phase separation structure, wherein the water-insoluble polymer is a polymer without a cross-linking point; and

a stimuli-responsive polymer

wherein the polymer hydrogel is capable of gelating as a result of absorbing and swelling with water and capable of changing its degree of swelling and/or volume in response to a stimulus.

Claim 9 (cancelled).

Claim 10 (previously presented): The stimuli-responsive polymer hydrogel according to Claim 8, wherein the water-insoluble polymer has a glass transition temperature lower than a working temperature of the stimuli-responsive polymer hydrogel, and wherein the water-insoluble polymer has a rubbery characteristic at the working temperature.

Claim 11 (previously presented): The stimuli-responsive polymer hydrogel according to Claim 8, wherein the stimulus is a change in pH, and wherein the stimuli-responsive polymer hydrogel changes volume in response to the pH change.

Claim 12 (previously presented): A method for producing a stimuli-responsive polymer hydrogel, comprising:

polymerizing a monomer having a stimuli-responsive functional group with a crosslinker in a solution of a water-insoluble polymer in an organic solvent to yield an organogel comprising

the water-insoluble polymer and a stimuli-responsive polymer, wherein the water-insoluble polymer is a polymer without a cross-linking point;

subjecting the organogel to a treatment to remove the organic solvent to thereby yield a dried gel, the treatment selected from the group consisting of: drying under reduced pressure; drying by heating; and drying by heating under reduced pressure; and

allowing the dried gel to swell with water to thereby yield a hydrogel.

Claim 13 (previously presented): A method for producing a stimuli-responsive hydrogel, comprising:

carrying out the polymerization of a monomer having a stimuli-responsive functional group with a crosslinker in a solution of a water-insoluble polymer in an organic solvent to yield an organogel comprising the water-insoluble polymer and a stimuli-responsive polymer, wherein the water-insoluble polymer is a polymer without a cross-linking point; and

immersing the organogel in water or a water-containing liquid mixture to thereby yield a hydrogel.

Claim 14 (previously presented): A polymer actuator comprising:

a stimuli-responsive polymer hydrogel capable of gelating as a result of absorbing and swelling with water and capable of changing its volume in the actuator in response to a stimulus,

wherein the stimuli-responsive polymer hydrogel includes a water-insoluble polymer as a phase separation structure and a stimuli-responsive polymer, wherein the water-insoluble polymer is a polymer without a cross-linking point.

Claim 15 (previously presented): The polymer actuator according to Claim 14, wherein the water-insoluble polymer has a glass transition temperature lower than a working temperature of the stimuli-responsive polymer hydrogel, and wherein the water-insoluble polymer has a rubbery characteristic at the working temperature.

Claim 16 (previously presented): The polymer actuator according to Claim 15, wherein the working temperature is about room temperature.

Claim 17 (previously presented): The polymer actuator according to Claim 14, wherein the water-insoluble polymer has a glass transition temperature lower than about 20°C.

Claim 18 (previously presented): The polymer actuator according to Claim 14, wherein the stimulus is a change in pH, and wherein the stimuli-responsive polymer hydrogel changes volume in response to the pH change.

Claim 19 (currently amended): The polymer actuator according to Claim 14, wherein when a monomer component constituting the stimuli-responsive polymer comprises a monomer having a stimuli-responsive functional group, the dry volume ratio of the water-insoluble polymer to the monomer having a stimuli-responsive functional group is between 100:5 to 100:100.

Claim 20 (currently amended): The polymer actuator according to Claim 19, wherein the dry volume ratio of the water-insoluble polymer to the monomer having a stimuli-responsive functional group is between 100:10 to 100:60.

Claim 21 (previously presented): The stimuli-responsive polymer hydrogel of claim 10, wherein the working temperature is about room temperature.

Claim 22 (previously presented): The stimuli-responsive polymer hydrogel according to Claim 8, wherein the water-insoluble polymer has a glass transition temperature lower than about 20°C.

Claim 23 (currently amended): The stimuli-responsive polymer hydrogel according to Claim 8, wherein when a monomer component constituting the stimuli-responsive polymer comprises a monomer having a stimuli-responsive functional group, the dry volume ratio of the water-insoluble polymer to the monomer having a stimuli-responsive functional group is between 100:5 to 100:100.

Claim 24 (currently amended): The stimuli-responsive polymer hydrogel according to Claim 23, wherein the dry volume ratio of the water-insoluble polymer to the monomer having a stimuli-responsive functional group is between 100:10 to 100:60.